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Stories.—"Fair Snow-White;" "Robert Bruce and the Spider;" "Arachne;" "How Peggy Got a Pair of New Stockings."

Songs.—"Spin, Lassie, Spin;" "Fair Snow-White;" "Indian Lullaby;" "Foreign Children;" "Baa Baa Black Sheep;" "Little Bo-Peep;" "The North Wind Doth Blow;" "I Love Little Pussy."

Physical training.—Anthropometry measurements; *examinations*, sense tests. Frequent rest periods spent in plays and games, out of doors as far as possible. Individual corrective work and class gymnastics.

SECOND GRADE.

OUTLINE FOR OCTOBER AND NOVEMBER.

CLARA ISABEL MITCHELL.

THE central activities of the school will be (1) cooking; (2) spinning, dyeing, and weaving; (3) wood-working; (4) pottery; (5) games and entertainments; (6) housekeeping; (7) school government.

Correlated with these central activities, as helps to them, will be lessons in nature study, geography, history, mathematics, sociology, literature, music, and physical culture.

Reading, writing, language, spelling, drawing, and modeling will be essential, but incidental, parts of these lessons.

Cooking.—Cooking will occupy one hour of each week. The first lesson will be on the storing of fruits and vegetables for the winter and the drying of apples.

Experiments: Put different pieces of fruit away for one week's test; some cleaned and dried, others dusty and damp; some in papers, others lying heaped together; some in dark places, others in light. Note differences, and at the end of a week draw inferences as to the proper ways of storing fruits for winter.

Compare, also, lemons and cranberries which have been kept in water with those which have not been put into water.

Rule for drying apples: Clean apples thoroughly, washing if necessary. Pare carefully, using silver knife. Divide into halves, quarters, then eighths. Remove stem and core. Record weight. Put pieces, separated, on plate or porcelain pan under gauge, and leave to dry thoroughly. (NOTE.—See use of these in fourth lesson.)

The second lesson in cooking will be out of doors, if possible, in ovens and over fires made by the children. Potatoes and eggs, rolled in wet paper, will be roasted in hot ashes. Apples will be spitted and hung over the fire; also baked in the oven with a little water, and sprinkled with sugar.

The third lesson will be the making of apple jelly.

Rule for apple jelly: Select apples which from previous study are known to be tart. If possible, use apples so sound that they need not be peeled or cored. After cleaning, cut into quarters and put into a porcelain kettle with a cup of water for each six pounds of fruit. Simmer slowly till fruit is thoroughly cooked. Drain off the juice in a muslin bag. Clean the kettle and boil the juice twenty minutes, allowing three-fourths of a pound of sugar to each pint of juice. Pour into glasses and place them under gauge, in the sunlight, to set. The glasses should be previously rolled in hot water and set in it during filling. When firmly set the jelly will be served at the luncheon hour.

The fourth lesson will be the stewing of apples, both fresh and dried.

Sweet apples boiled with syrup: Pare, quarter, and core a sweet apple, not over-ripe. Boil in porcelain kettle till tender, adding water equal to one-sixth the bulk of fruit. Do not stir. Remove with fork. Add to the juice lemon and sugar to suit taste; boil for twelve minutes; then pour over the apple.

To stew dried apples: Reweigh and cook with same *weight* of water as above, plus that lost by drying. Cook gently. Allow a cup of sugar to every quart of water used.

The fifth lesson will be preparation of grape juice.

Rule for making grape juice: Pick from stem and thoroughly wash juicy, sound grapes. Heat to boiling in porcelain kettle with one-sixth its quantity of water. Cook fifteen minutes. Filter through stout muslin bag. Let juice settle. Pour all but sediment back into cleaned kettle, adding sugar equal to one-eighth of its bulk. Reheat to boiling. Drink when cool.

The sixth lesson will be the grinding of corn in pestle and mortar, pounding in canvas bag with stones to make meal. This meal will be boiled as children suggest.

As contrast to the primitive methods just tried, the seventh lesson will be the preparation of cerealine flakes.

Rule for preparing cerealine flakes: Into one measure of boiling water stir an equal quantity of cerealine flakes. Cook in double boiler a half hour, adding, just before removing from fire, a little salt, a few raisins, chopped figs, or dates. Serve with cream and sugar, if desired.

The eighth lesson will be the popping of corn for the Thanksgiving day luncheon.

Textile arts.—Spinning of wool on spindle and wheel. Dyeing of yarns with home-made dyes; experiments with iron-rust, coffee, tea, onion, barks and roots of familiar trees and plants, berries. Mordanting and dyeing with indigo, logwood, madder, cochineal, and old fustic.

Weaving of hand-made and dyed yarns into little mats and holders; mats and curtains for play-house; mats, bags, and small cushion covers of manila fiber, cotton or wool yarn, or raffia.

Basketry: Rattan. Indian splints. Raffia.

Embroidery: Designing and sewing small squares of linen or canvas for table or desk centers, cushion covers or book covers. Dust-cloth bags, school bags, all executed in long satin-stitch or cross-stitch.

Correlated nature study: Practical use of acids, alkalis, and salts in dyeing. Action of strong acid on each of the textile fibers, alkali. Litmus. Use of litmus paper. Experiments to show use of sunlight, acids, and alkalis in fading colors. Colors of the spectrum as found with glass prism. As wide observation as possible of the coloration of shells, birds, insects, flowers, and fruits. Relation of coloration to habits and uses. Study of coal as source of dyes.

History: Stories of shepherd life. Early Jewish, Arabian. Shepherd life compared with that of primitive times. Invention of spindle, distaff, loom. Beginnings of basketry, weaving. Methods of getting clothing in the days of hunter life. North American Indians. Among early lake-dwellers of Switzerland. Domestication of dog, ox, sheep. Beginnings of commerce.

Literature: Bible stories of Abraham, Isaac, Jacob, and Joseph. Indian myths. Story of Iris. Stories of Athena.

Geography: Transportation of textile fibers and fabrics to and from the city. Pictures and description of modern methods of transportation as contrasted with primitive excursions to docks, markets, freight houses, and shops. Pictures of tropical forests and visits to botanical gardens to see trees from which dyes are obtained. Stories of coal-mining and coal as source of dyes.

Enough wool will be spun and dyed to make a holder for each child to use in cooking. The spindle used will be made by the children in the shop. The spinning wheel is one bought of R. R. Street & Co., Chicago; price \$5. Wool fibers will be examined and sorted as to length, fineness, elasticity, strength, and curl. It will be scoured, loosely, with soap and hot water; also matted and fatted. Dyeing will be done in the laboratory, over gas burners or alcohol lamps, in half-pint granite cups. The children will experiment with bark, roots, berries, and iron rust collected by themselves; also madder, cochineal, indigo, logwood, and old fustic, bought of a druggist or at a dye-house.

When it is found that the extract of these colors will not stain the fibers even with boiling, the children will be directed to add small quantities of salt, soda, or dilute sulphuric acid to the bath. Holding power of the color will be tested by rubbing, sunlight, and washing with soap. After these experiments, fast dyes and mordants will be *prepared by the teacher*, and children will use according to formula, studying and watching shades afterward compounding colors.

Indigo: 1 part, by weight, of indigo; 1 part, by weight, of slaked lime; of 2 parts, by weight, of zinc powder; 200 parts, by weight, of water.

TEN GRAMS OF LOGWOOD.

1. Black: First boil wool for one hour in water containing a very little (say 3 decigrams) bichromate of potash and 1 gram of sulphuric acid. Wash, and boil for one hour with 5 grams of logwood.

2. Purple: Boil wool for one hour with 6 per cent. of tin crystals and 9 per cent. cream of tartar, then dye with 30 per cent. of logwood.

MADDER.

3. Reddish brown: Mordant and dye as in 1, using madder in place of logwood.

4. Red: Boil wool with 6 to 10 per cent. of aluminum sulphate and 5 to 8 per cent. of cream of tartar. Dye with 60 to 80 per cent. of madder.

COCHINEAL.

5. Crimson: Mordant and dye as in 4, using 8 to 15 per cent. of cochineal instead of madder.

6. Scarlet: Mordant with 6 per cent. stannous chloride and 5 per cent. of cream of tartar. Boil in 5 to 12 per cent. of cochineal for one hour.

OLD FUSTIC.

7. Bright yellow: Same as 6, using 40 per cent. old fustic, 8 per cent. of stannous chloride, 2 per cent. of cream of tartar, and 2 per cent. of oxalic acid.

8. Old gold: Boil for one hour with 3 to 4 per cent. of bichromate of potash. Wash, and boil in 20 to 80 per cent. of old fustic.

REFERENCES: Hummel, *The Dyeing of Textile Fabrics*; Finckel, *A Manual of Experiments in Dyeing*, Philadelphia.

Holders 6×6 inches will be woven of the wool spun and dyed. This first weaving will be the simple darning process on a block of pine wood 13×7 inches, 1 inch thick, with wire nails driven around it a half-inch from the margin, and $\frac{1}{4}$ of an inch apart. The warp of the color will be stretched from end to end of the block around each nail. The filling of another color will be darned in with a long wire needle, or packer's needle, and around the nails at the side of the block. When finished, this mat will be taken off the nails, folded double, and its edges buttonholed, or overhanded together.

Wood-working.—Children will make looms of 1-inch pine. Frames 16×12 inches and 2 inches deep; corners nailed together. Uprights of same lumber, 1×2 inches, 6 inches tall, are also nailed inside the corners of the frame. A 1-inch auger hole is made in the top of each upright. Through the holes in these pairs of uprights are run 1-inch rollers which, extending across the ends of the loom, form beams upon which to tie warp threads.

Pottery.—At least one hour each week will be spent in attempts at dishes for the luncheon table, modeling, glazing, decorating, and baking.

Games and entertainments.—Second-grade children will contribute their share in the daily morning exercise of the whole school, giving occasional

accounts of observations made in the room, reports on work or expeditions, or telling short stories. Once a week, also, they will invite into their room for a half-hour some one of the other classes in the school, and plan to entertain their visitors with stories, dramatizations, or games. Once in the two months the kindergarten and primary children will have a party in the gymnasium, directed by the head of the department of physical culture.

Housekeeping.—Committees will be elected each week for the care of the lunch-room, washing of dishes, and setting of table. Each child will be taught to launder his own towel and napkin; also use of dust-pan and brush in keeping the floor neat about his own desk; use of dust-cloth; removal of ink spots from desk.

School government.—While no lesson can be prearranged for the teaching of rules for community life, the children will be encouraged always to help in the work of the school and never hinder its progress, to feel personal responsibility in the neatness of rooms and corridors, and to behave courteously toward all the people in the school.

Nature study.—Interest aroused in the use of colors in dyeing and making will be carried over into elementary science lessons, giving direction and meaning to observations. After the first discussion of colors suitable for weaving materials, the children will be shown the spectrum colors, by means of a prism in the sunlight. They will be directed to look for these colors in their tones and tints and shades in nature. They will paint pictures of the landscape at the lakeshore, from prairies, sand dunes, and marsh, and compare coloring. They will tell the difference between autumn coloring and that of the other seasons. Excursions will be taken and collections made to find what the grass, leaves, seeds, and fruits are *doing*, and what relation their *coloring* has to their *use*. All seeds possible will be collected and classified as to means of dissemination. Relation of familiar fruits to animal life, and influence of color in selection, will be observed, read of, and talked about. Insects of the prairie, lakeshore, and swamp will be collected and kept in the schoolroom. Their coloration will be studied, and its bearing upon their food-getting and protection. Record of changing temperature will be kept day by day and compared with change of color in the landscape.

REFERENCES: Jackman, *Nature Study*; Humboldt Library Nos. 115, 116; No 26, chaps. ii and ix; No. 64; Chevreul, *Theory of Color*.

Arithmetic.—In cooking, the children measure materials by ounces, pounds, pints, quarts, cupsful, pecks, and bushels. The arithmetic lessons will be given to teaching these scales and repetition of problems which have arisen, or are likely to arise. Halves, quarters, and eighths of pounds, quarts, pecks, and bushels will be taught. If these do not occur frequently enough in actual problems to make them clear, they will be taught by similar problems and games proposed by the teacher. Halves, fourths, thirds, and sixths of a foot will be taught in the same way as help to measuring in the shop.

History.—Study of wool as material of clothing will arouse interest, not only in the wool industries of our own time, but in those of the past. By means of pictures, stories, and talks the children will be given something of an appreciation of the shepherd stage in social life. The stories of Abraham, Isaac, Jacob, and Joseph have been chosen as the most beautiful illustrations of this. The method of giving this as true history study will be through pictures and descriptions, making clear the geographical, climatic, and material condition of the places, people, and time, and allowing the children to argue for themselves probable industrial conditions and happenings. The motive in the lessons will be to have the class image the social life of the time with all its inventions and processes; to grasp something of the relation of that to geographical conditions; to recognize in it forces leading to the next step in civilization, power, and knowledge which were to carry the race forward.

REFERENCES: Stanley, *History of the Jewish Church*, Vol. I; Renan, *History of the Jews*; Tyler, *Anthropology*; Baldwin, *Stories of the East*; Josephus.

Literature.—As the lessons on shepherd life are worked out, and the geographical conditions are pictured, Moulton's version of the Bible stories of Abraham, Isaac, Jacob, and Joseph will be read, re-read, and told to the children.

Geography.—As a help to the better understanding of the region about us and the seasons' changes, the children will examine the different kinds of soil of this vicinity, *i. e.*, clay, prairie soil, swamp soil, sand from the dunes, and prepared garden soil. They will learn to recognize the constituents as comminuted rock, vegetable mold, and gravel. By weight they will learn proportions of each in the different soils. Quantities of each will be placed in boxes in the schoolroom, and seeds will be planted in each for observation—grass seed, edible grains, cotton, and flax seed. Granite, quartz, slate, limestone, and sandstone will be examined and ground up in the study of soil-making. The making of soil will be observed in the wearing coast at Lakeside, and in the building of coasts at the dunes.

Writing.—Before each lesson in cooking the children will write their recipes, which will be tacked together with Magill fasteners and kept in book form.

They will also have blank books in which to write new words, in alphabetical order. They will keep records of experiments and excursions, for the sake of making correct reports.

Stories and plays will be written by teacher at children's dictation, also reproduced by children in writing, as helps in the weekly entertainments.

Reading.—Reports and stories written by children will all be printed, returned to them, bound in book form, and read by them, as suggested above. Five minutes, apart from the reading period each day, will be spent in phonics games.

Drawing and painting.—All lessons and studies which prove sufficiently interesting will be illustrated in whatever way the children choose. The pictures can be made a means of helping in the imagery of the subject-matter illustrated, if the teacher insists that they express the facts, not only as the child sees and feels them, but as truly and completely as he can be *led* to see them and feel them.

THIRD GRADE.

GUDRUN THORNE-THOMSEN.

THE basis for the work of the year is the community life of the children. The aim is to present the best conditions for the children to gain social experience, and to use this experience for the good of the community. To this end the children will be organized into groups engaged in social activities. Activities and occupations which will be carried on during the year: cooking, baking, and preserving; care of domestic animals, chickens; gardening: a vegetable and flower garden; pottery: making of dishes, vases, statuettes, bas-reliefs, etc.; sewing: making of necessary articles for use in the school and at home—aprons, dusters, bags, etc.; wood-work: necessary apparatus, gifts for the home, etc.; bookbinding. Other activities may be engaged in according to necessity.

The children will be encouraged to acquire knowledge from every available source in order to carry on these activities in the most effective manner. For this purpose it will be necessary to visit factories and other places in the vicinity where similar occupations are engaged in; also museums and collections of all kinds; to perform experiments and use books and pictures for information, as well as objects and specimens from the school museum. Each activity has a scientific and a social aspect; both will receive due attention. Records of the work will be kept in the form of finished articles, collection of objects studied, written notes, essays, drawings, and paintings.

Bread, our staple food, will first receive our attention. The group will try to bake some bread, and it is believed that even a failure will be of educative value.

Recipe from Mrs. Norton, *COURSE OF STUDY*, March, 1901, Vol. I, p. 623: 1 pint of liquid (milk, or milk and water); 1 tablespoon of butter; 1 tablespoon of sugar; 1 ½ teaspoons of salt; 1 yeast cake moistened with ¼ cup of